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WHAT IS CLAIMED IS:

1. An information acquisition apparatus
comprising:

a stage for placing a specimen;

5 a temperature regulation means for regulating
the temperature of said specimen;

an exposure means for exposing a surface of said
specimen of which surface information is desired; and

10 an information acquisition means for acquiring
the information relating to the surface exposed by
said exposure means.

2. An information acquisition apparatus
according to claim 1, wherein the exposure by said
15 exposure means and the acquisition of the information
by said information acquisition means are executed in
a state where said specimen is regulated at a preset
temperature by said temperature regulation means.

20 3. An information acquisition apparatus
according to claim 1, wherein said temperature
regulation means is provided with a cooling means for
cooling said specimen to a temperature lower than the
room temperature.

25 4. An information acquisition apparatus
according to claim 1, wherein said stage, said

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exposure means and said information acquisition means are provided in a chamber of which atmosphere is controllable, and the information acquisition apparatus further comprises a trap means for
5 capturing gas remaining in said chamber.

5. A cross section evaluating apparatus comprising:

- a stage for placing a specimen;
- 10 a temperature regulation means for regulating the temperature of said specimen;
- an ion beam generation means for irradiating said specimen with an ion beam thereby cutting out a cross section or working said specimen;
- 15 an electron beam generation means for irradiating said specimen with an electron beam; and
- a detection means for detecting an emission signal emitted from said specimen in response to the irradiation with said ion beam or the irradiation
20 with said electron beam, to acquire information from said detection means.

6. A cross section evaluating apparatus according to claim 5, wherein said temperature
25 regulation means is provided with a cooling means for cooling said specimen to a temperature lower than the room temperature.

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7. A cross section evaluating apparatus according to claim 5, wherein said stage, said ion beam generation means, said electron beam generation means and said detection means are provided in a chamber of which atmosphere is controllable, and the cross section evaluating apparatus further comprises a trap means for capturing gas remaining in said chamber.

8. A cross section evaluating apparatus according to claim 5, further comprising an information acquisition means for irradiating a predetermined portion of said specimen with said ion beam to cut out a cross section or work the specimen, scanning the surface of said predetermined portion or said cut-out cross section with said ion beam or said electron beam, and acquiring an image information relating to the surface of said predetermined portion or said cut-out cross section based on emission signals from plural point detected by said detection means in synchronization with said scanning.

9. A cross section evaluating apparatus according to claim 8, wherein said temperature regulation means is comprised of:

a specimen stage having a temperature varying mechanism in a portion where said specimen is fixed,

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and rendering the fixed specimen capable of moving
and rotating in predetermined directions;

a first temperature detection means mounted in a
part of said temperature varying mechanism to detect
5 the temperature of the vicinity of the specimen fixed
to said temperature varying mechanism; and

a temperature control means for regulating the
temperature in said temperature varying mechanism
based on the temperature detected by said first
10 temperature detection means to keep the temperature
of said specimen at a preset temperature.

10. A cross section evaluating apparatus
according to claim 9, wherein a lateral face of the
15 specimen fixed on said temperature varying mechanism
is irradiated with the ion beam.

11. A cross section evaluating apparatus
according to claim 9, wherein said temperature
20 regulation means is further comprised of a second
temperature detection means for directly detecting
the temperature of the specimen and a display means
for displaying the temperature detected by said
second temperature detection means.

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12. A cross section evaluating apparatus
according to claim 11, wherein said temperature

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control means regulates the temperature in said temperature varying mechanism based on temperatures detected by the first and second temperature detection means.

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13. A cross section evaluating apparatus according to any of claims 5 to 10, wherein said emission signal is a secondary electron and/or a characteristic X-ray.

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14. A cross section evaluating apparatus according to claim 13, wherein said emission signal is a secondary electron or a characteristic X-ray.

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15. A cross section evaluating apparatus according to any of claims 5 to 10, wherein said detection means is comprised of a first detector for detecting a secondary electron and a second detector for detecting a characteristic X-ray.

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16. A cross section evaluating method comprising the steps of:

regulating the temperature of a specimen;

irradiating a predetermined portion of said

25 specimen with an ion beam to cut out a cross section; and

scanning said cut-out cross section with an

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electron beam and acquiring an image relating to said cross section from an emission signal emitted from plural points in synchronization with said scanning.

5 17. A cross section evaluating method according to claim 16, wherein said emission signal is a secondary electron and/or a characteristic X-ray.

10 18. An information acquisition apparatus according to claim 4, wherein said emission signal is a secondary electron and/or a characteristic X-ray.

15 19. An information acquisition apparatus according to claim 18, wherein said emission signal is a secondary electron or a characteristic X-ray.

20 20. An information acquisition apparatus comprising:

 a stage for placing a specimen;

20 a temperature regulation means for regulating the temperature of said specimen;

 an ion beam generation means for irradiating said specimen with an ion beam thereby cutting out a cross section or working said specimen;

25 an electron beam generation means for irradiating said specimen with an electron beam; and
 a detection means for detecting an emission

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signal emitted from said specimen in response to the irradiation with said ion beam or the irradiation with said electron beam, to acquire information from said detection means.

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21. An information acquisition apparatus according to claim 20, wherein said stage, said ion beam generation means, said electron beam generation means and said detection means are provided in a chamber of which atmosphere is controllable, and the cross section evaluating apparatus further comprises a trap means for capturing gas remaining in said chamber.

15 22. An information acquisition apparatus according to claim 1, said information acquisition apparatus further comprising 前記 stage を外気から密封して移動させるための密封手段。

20 【請求項 23】

 試料の断面を加工するための装置であって、
 該試料を載置するための載置台と、
 該試料の温度を調整するための温度調整手段と、
 該試料に対してビームを照射して該試料の加工を行うためのビーム発生手段と、
25 加工前に該載置台と該試料を搬送する前に該試料と該載置台を収納して密封するための密封手段と、

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を具備していることを特徴とする断面加工装置。

【請求項 24】

- 5 試料の温度を調整する第1の工程と、
該試料にビームを照射して断面の切り出しを行う第2の工程と、
該温度制御された試料を密封する第3の工程と、
該密封された試料を他の装置へ搬送する第4の工程と、
該搬送された試料を前記他の装置を用いて評価を行う第5の工程と、
を有することを特徴とする断面評価方法。

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25. An information acquisition apparatus
comprising:

- a stage for placing a specimen;
a temperature regulation means for regulating
15 the temperature of the specimen; and
an information acquisition means for acquiring
the information relating to the surface of the
specimen,
wherein said temperature regulation means operates to
20 regulate the temperature such that the temperature of
the specimen is regulated at the predetermined
temperature for acquiring the accurate information.

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